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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,557	03/25/2004	Makoto Iwashima	61355-054	4774

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Washington, DC 20005-3096

EXAMINER
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BERHANU, SAMUEL

ART UNIT	PAPER NUMBER
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2838

DATE MAILED: 06/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/808,557

Applicant(s)

IWASHIMA ET AL.

Examiner

Samuel Berhanu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/25/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: The specification lacks appropriate spacing between words. Spacing between words is required in order to make the specification easily readable. Appropriate correction is required.
2. Claims 1-9 are objected to because of the following informalities: The claims are required appropriate spacing between words. Appropriate spacing between words is required in order to make the claims readable. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 6 and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamura et al. (US 2003/0015995).

Regarding Claim 1, Tamura et. al. disclose in Figures 1-8, a battery pack malfunction detection apparatus that detects a malfunction in a battery pack constituted with a plurality of chargeable/dischargeable cells, comprising: malfunction detection devices (Cuij and Clij) each provided in correspondence to a predetermined number of cells (Ci1 to Cin) to detect an overcharge malfunction

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in the corresponding predetermined number of cells during an overcharge detection period and to detect an over-discharge malfunction in the corresponding predetermined number of cells during an over-discharge detection period( Noted that Cuij is for over charging malfunction and Clij is for over discharging malfunction); and a decision-making device (BCU) that makes a decision as to whether or not a cell in an overcharge malfunction state or a cell in an over-discharge malfunction state exists based upon a signal input from each of the malfunction detection devices ,wherein: each of the malfunction detection devices outputs a first signal (L) if an overcharge malfunction is detected in any of the corresponding predetermined number of cells and outputs a second signal (L) if no overcharge malfunction is detected during the overcharge detection period, outputs the second signal if an over-discharge malfunction (L) is detected in any of the corresponding predetermined number of cells and outputs the first signal if no over-discharge malfunction is detected during the over-discharge detection period, and alternately outputs the output signal during the overcharge detection period and the output signal during the over-discharge detection period to the decision-making device through time sharing (paragraphs 0006, 0010, 0011,0041-0043, 0056-0058 and 0075).

Regarding Claim 2, Tamura et. al. disclose in Figures 1-8, wherein the decision-making device decides that there is a cell with an overcharge malfunction if the first signal is input from the malfunction detection device both during the overcharge detection period and during the over-discharge detection

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period (noted that the signal of the over charge decision device is always available to the BCU)

Regarding Claim 3, Tamura et. al. disclose in Figures 1-8, wherein: the decision-making device decides that there is a cell with an over-discharge malfunction if the second signal is input from the malfunction detection device both during the overcharge detection period and during the over-discharge detection period (noted that the signal of the over discharge decision device is always available to the BCU)

Regarding Claim 4, Tamura et. al. disclose in Figures 1-8, wherein: each of the malfunction detection devices includes a voltage comparator (23, 27) that compares a terminal voltage at each of the corresponding predetermined number of cells with a reference voltage (Du and DI), outputs the first signal if the terminal voltage at any cell is higher than the reference voltage by using an overcharge decision-making voltage as the reference voltage during the overcharge detection period and outputs the second signal if the terminal voltage at any cell is lower than the reference voltage by using an over-discharge decision-making voltage as the reference voltage during the over-discharge detection period ( see figure 3, and paragraphs 0046-0049 and 0052-0055).

Regarding Claim 6, Tamura et. al. disclose in Figures 1-8, wherein: the overcharge malfunction detection period and the over-discharge malfunction detection period extend over lengths of time different from each other (noted that both signals are generated on their time slot).

Regarding Claim 8, Tamura et. al. disclose in Figures 1-8, a battery pack

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malfunction in a battery pack constituted with a plurality of chargeable/dischargeable cells, comprising a plurality of malfunction detection means (Cuij and Clij), each provided in correspondence to a predetermined number of cells, for detecting an overcharge malfunction in the corresponding predetermined number of cells during an overcharge detection period and an over-discharge malfunction in the corresponding predetermined number of cells during an over-discharge detection period; and a decision-making means(BCU) for making a decision as to whether or not a cell in an overcharge malfunction state or a cell in an over-discharge malfunction state exists based upon a signal input from the malfunction detection means, wherein: each of the plurality of the malfunction detection means outputs a first signal (H) if an overcharge malfunction is detected in any of the corresponding predetermined number of cells and outputs a second signal (L) if no overcharge malfunction is detected during the overcharge detection period, outputs the second signal if an over-discharge malfunction is detected in any of the corresponding predetermined number of cells and outputs the first signal if no over-discharge malfunction is detected during the over-discharge detection period, and alternately outputs the output signal during the overcharge detection period and the output signal during the over-discharge detection period to the decision-making means through time sharing (paragraphs 0006, 0010, 0011,0041-0043, 0056-0058 and 0075).

Regarding Claim 9, Tamura et. al. disclose in Figures 1-8, a battery pack malfunction detection method for detecting a malfunction in a battery pack constituted with a plurality of chargeable/dischargeable cells comprising:

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generating a first signal (H) upon detecting an overcharge malfunction in any of the cells and a second signal (L) if no overcharge malfunction is detected during an overcharge detection period; generating the second signal (L) upon detecting an over-discharge malfunction in any of the cells and the first signal if no over-discharge malfunction is detected during an over-discharge detection period; outputting the signal generated during the overcharge detection period and the signal generated during the over-discharge detection period alternately through time sharing; and making a decision as to whether or not there is a cell manifesting an overcharge malfunction or an over-discharge malfunction based upon the signal output through time sharing (paragraphs 0006, 0010, 0011, 0041-0043, 0056-0058 and 0075).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US 2003/0015995) in view of Fogg (US 6,836,095).

Regarding claim 5, Tamura do not disclose explicitly disclose a clock generation device that generates a clock signal, wherein: each of the malfunction detection devices switches between an overcharge malfunction detection and an

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over-discharge malfunction detection based upon the clock signal generated by the clock generation device. However, Fogg discloses in columns 8, lines 40-56, a clock generation device that generates a clock signal, wherein: each of the malfunction detection devices switches between an overcharge malfunction detection and an over-discharge malfunction detection based upon the clock signal generated by the clock generation device. It would have been obvious to a person having ordinary skill in the art at the time of the invention to use a clock signal to drives the switches as taught by Fogg in Tamura et. al. device in order to provide periodic switching means from one mode to the other.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US 2003/0015995) in view of Miyagi (US 2004/00322238).

Regarding Claim 7, Tamura et. al. discloses if a current consumed if a current consumed in the battery pack malfunction detection apparatus when the malfunction detection devices output a signal indicating that none of the corresponding predetermined number of cells is in an overcharged state is different from a current consumed in the battery pack malfunction detection apparatus when the malfunction detection devices output a signal indicating that none of the corresponding predetermined number of cells is in an over-discharged state (paragraphs 0006, 0010, 0011, 0041-0043, 0056-0058 and 0075). Tamura et. al. do not disclose explicitly, the signal requiring a larger current consumption is output over a smaller length of time than the signal requiring a smaller current consumption. However, Hiroshi Miyagi discloses in Figure, 7, and paragraphs 0018, 0019 and 0070, the signal requiring a larger



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current consumption is output over a smaller length of time than the signal requiring a smaller current consumption (noted that the transistor length and width can be designed to output high or low magnitude of current with respect to time). It would have been obvious to a person having ordinary skill in the art at the time of the invention to add a means to control a current flow in Tamura et. al. apparatus as taught by Miyagi in order to have different time period for different for different signals.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel Berhanu whose telephone number is 571-272-8430. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SB

  
**KARL EASTHOM**  
SUPERVISORY PATENT EXAMINER